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# Molecular players of DNA damage response in human malignancies

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## Abstract

DNA damage response acts as anti-cancer barrier in human tumorigenesis.

CCDC6 is a substrate of the kinase ataxia telangectasia mutated (ATM), which allows a proper DNA damage checkpoint in response to genotoxic stress. CCDC6 is found rearranged upon fusion with different partners in several human cancer types.

To date, testicular germ cell tumors (TGCTs) have been reported to lack the DDR pathway activation. For this reason, we analyzed CCDC6 expression on serial section of mouse testis by immunohistochemistry and on separate population of murine testicular cells by western blot. In addition, we evaluated CCDC6-proficient and CCDC6-deficient GC1 germ cells for the resistance to DNA damage-induced apoptosis and the production of reactive oxygen species, and normal human germ cells, a series of male germ cell tumours and the human seminoma TCam2 cell line for the expression of CCDC6, with immunohistochemistry and western blot.

We found that CCDC6 loss was the most consistent feature among the primary tumors and TCam2 cells. Moreover, CCDC6 silencing in GC1 cells caused resistance to oxidative DNA damage. These results indicate that the loss of CCDC6 in germ cell tumors may be considered as a limiting event in tumor formation.

## Biography

Stefania Staibano: MD, Post-Graduate in Pathology and Surgical Pathology, PhD in Pathological Sciences, Associate Professor of Pathology and Chief of the Head and Neck Pathology section of the University of Naples “Federico II”, Naples, Italy; Member of the 2000 Austrian-Italian consensus panel for the dermoscopic and histologic correlations of pigmented skin tumors; Head of Research Units of several funded National projects; Member of AIOM-SIAPEC experts for B-Raf mutational status evaluation in melanomas.

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